

PLEASE SUBSTITUTE THE FOLLOWING LISTING OF CLAIMS FOR THE LISTING IN THE APPLICANT'S PAPER FILED APRIL 27, 2007:

1. (Original) A calcination plant for a particulate feed material comprising:

a storage silo for the feed material;

a calcination reactor;

a solid-gas separation unit; and

first means for fluidizing said particulate feed material from the silo and for sequentially conveying a resulting fluidized feed stream through the reactor and separation unit to produce a solid calcined product and a gaseous exhaust;

wherein said reactor and separation unit are enclosed in the storage silo and immersed in the particulate feed material stored therein.

2. (Original) The plant of claim 1, further comprising a first heat exchanger between said gaseous exhaust and a reactor air stream used for fluidizing the particulate feed material conveyed to the reactor.

3. (Original) The plant of claim 1, further comprising second means for fluidizing the particulate feed material prior to storage and for conveying a resulting fluidized feed stream to the storage silo.

4. (Original) The plant of claim 3, further comprising a second heat exchanger between said gaseous exhaust and a feed air stream used for fluidizing the particulate feed material conveyed to the silo.
5. (Original) The plant of claim 1, further comprising second means for fluidizing the particulate feed material prior to storage and for conveying a resulting fluidized feed stream to the storage silo; comprising a first heat exchanger between said gaseous exhaust and a reactor air stream used for fluidizing the particulate feed material conveyed to the reactor; and a second heat exchanger between said gaseous exhaust and a feed air stream used for fluidizing the particulate feed material conveyed to the silo.
6. (Original) The plant of claim 5, wherein said first and second heat exchangers are enclosed in the storage silo and immersed in the particulate feed material stored therein.
7. (Original) The plant of claim 1, wherein said solid-gas separation unit includes a cyclone.
8. (Original) The plant of claim 6, wherein said solid-gas separation unit includes a cyclone.
9. (Original) The plant of claim 1, wherein said calcination reactor has a substantially cylindrical bottom portion including a fuel burner and said fluidized feed stream is introduced tangentially in the bottom portion such as to produce a cyclonic flow through the reactor.

10. (Previously Presented) The plant of claim 2, wherein said calcination reactor has a substantially cylindrical bottom portion including a fuel burner and said fluidized feed stream is introduced tangentially in the bottom portion such as to produce a cyclonic flow through the reactor.

11. (Original) The plant of claim 1, wherein said first means for fluidizing said particulate feed material from the silo and for sequentially conveying a resulting fluidized feed stream through the reactor and separation unit comprises at least one positive displacement blower.

12. (Original) The plant of claim 10, wherein said first means for fluidizing said particulate feed material from the silo and for sequentially conveying a resulting fluidized feed stream through the reactor and separation unit comprises at least one positive displacement blower.

13. (Original) The plant of claim 11, wherein said first means for fluidizing said particulate feed material from the silo and for sequentially conveying a resulting fluidized feed stream through the reactor and separation unit further comprises at least one variable-speed draft fan for said gaseous exhaust.

14. (Original) The plant of claim 11, wherein said first means for fluidizing the particulate feed material from the silo comprises at least one rotary valve for delivering the feed material from the silo into a conduit to produce said fluidized feed stream.

15. (Original) The plant of claim 13, wherein said first means for fluidizing the particulate feed material from the silo comprises at least one rotary valve for delivering the feed material from the silo into a conduit to produce said fluidized feed stream.

16. (Original) The plant of claim 1, further comprising means for injecting a silo air stream into the silo in order to promote uniform flow of the feed material out of the silo.

17. (Original) The plant of claim 15, further comprising means for injecting a silo air stream into the silo in order to promote uniform flow of the feed material out of the silo.

18. (Original) The plant of claim 16, wherein said silo air stream is pre-heated by heat exchange with said gaseous exhaust.

19. (Original) The plant of claim 17, wherein said silo air stream is pre-heated by heat exchange with said gaseous exhaust.

20-22. (canceled)

23. (Currently Amended) A calcination plant for a particulate feed material comprising:

a substantially vertical calcination reactor having a bottom portion;

means for effecting transport of the particulate feed material through said calcination reactor along a substantially cyclonic flow path; and

[means] a burner for creating a [heat source within] flame exposed to the interior of said cyclonic flow path, said effecting means comprising means for introducing the particulate material into said calcination reactor substantially tangentially of said bottom portion, and said cyclonic flow path extending upwards from said bottom portion, said [creating means] burner being mounted in said bottom portion.

24. (canceled)

25. (Previously Presented) The plant of claim 23, further comprising a storage silo for the particulate feed material, means for fluidizing the particulate feed material prior to storage and for conveying a resulting fluidized feed stream to said storage silo, a first heat exchanger, a second heat exchanger and a solid-gas separation unit, said effecting means constituting part of means for fluidizing the particulate feed material from said storage silo and for sequentially conveying a resulting fluidized feed stream through said calcination reactor and said solid-gas separation unit to produce a solid calcined product and a gaseous exhaust, said first heat exchanger being located between said gaseous exhaust and a reactor air stream used for fluidizing the particulate feed material conveyed to said calcination reactor, and said second heat exchanger being located between said gaseous exhaust and a feed air stream used for fluidizing the particulate feed material conveyed to said storage silo, said solid-gas separation unit, said first heat exchanger and said second heat exchanger being located in said storage silo and at least partially immersed in the particulate feed material therein.

26. (Previously Presented) The plant of claim 25, further comprising means for injecting a silo air stream into said storage silo.

27-51. (canceled)

52. (New) The plant of claim 23, wherein said burner is mounted vertically and is designed to create an upward flame.